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| APPLICATION NO.   | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 10/648,886  | 08/26/2003  | Monte Manning        | MI22-2374           | 4873             |
| 21567   | 7590        | 11/29/2004           | EXAMINER            |                  |
| WELLS ST. JOHN P.S.<br>601 W. FIRST AVENUE, SUITE 1300<br>SPOKANE, WA 99201 |             |                      | NADAV, ORI          |                  |
|   |             |                      | ART UNIT            | PAPER NUMBER     |
|   |             |                      | 2811                |                  |

DATE MAILED: 11/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/648,886

Applicant(s)

MANNING, MONTE

Examiner

ori nadav

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– The MAILING DATE of this communication appears on the cover sheet with the correspondence address –  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 21 October 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 40-58 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 40-58 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>8/26/03</u> . | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 40-55 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lur et al. (5,413,962) in view of Choe (5,583,357).

Lur et al. teach in figure 11 and related text an Integrated circuitry comprising: a semiconductive substrate 20; an electrically insulating layer 22, 23 over the semiconductive substrate; and a series of alternating first and second conductive lines 24 spaced and positioned laterally adjacent one another over the insulating layer, the first lines and the second lines having respective line tops, and being electrically isolated from one another laterally by intervening insulating spacers having respective spacer tops that are substantially coplanar with at least some of the first and second line tops, wherein the series of first or second conductive lines providing cross talk shielding for the other series.

Lur et al. do not explicitly state that the spacers are insulating spacers.

Choe teaches in figure 11A and related text insulating spacers 5. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use insulating spacers in Lur et al.'s device in order to provide protection for the device.

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Regarding the claimed limitations of series of first or second conductive lines providing cross talk shielding for the other series, these features are inherent in prior art's device, because the claimed structure is identical to prior art's structure.

Regarding claims 41 and 49, Lur et al. teach in figure 11 and related text at least some of the individual laterally adjacent first and second series lines are disposed directly on the electrically insulating layer.

Regarding claims 42 and 50, Lur et al. teach in figure 11 and related text the first lines have a substantially common lateral cross sectional shape and the second lines have a substantially common lateral cross sectional shape, wherein Choe teaches in figure 11A and related text first lines' lateral cross sectional shape being different from the second lines' lateral cross sectional shape. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use first lines' lateral cross sectional shape being different from the second lines' lateral cross sectional shape in Lur et al.'s device in order to simplify the processing steps of making the device by forming the lines at constant intervals.

Regarding claims 43 and 51, Lur et al. teach in figure 11 and related text the first and second conductive lines constitute the same materials.

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Regarding claims 44, 46, 52 and 54, Lur et al. teach in figure 11 and related text the first 24 and second 40 conductive lines constitute different materials, wherein the first conductive lines predominately comprise doped polysilicon and the second conductive lines predominately comprise metal.

Regarding claims 45 and 53, Lur et al. do teach in figure 11 first conductive lines predominately comprise undoped polysilicon. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use first conductive lines predominately comprise undoped polysilicon in Lur et al.'s device in order to adjust the conductivity of the lines according to the application at hand.

Regarding claims 47 and 55, Lur et al. teach in figure 11 and related text a plurality of the series of the first and second conductive lines at multiple elevations relative to the substrate.

Regarding claim 48, Lur et al. teach in figure 11 and related text first and second lines having respective lateral widths and being spaced and positioned laterally adjacent one another, the first lines and the second lines being electrically isolated and separated from one another laterally by intervening strips of spacer material only having respective individual material lateral widths that are substantially less than the lateral widths of any of the first and second conductive lines, and none of the first and second lines overlapping any immediately laterally adjacent first or second lines.

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Claims 56-58 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chu (5,519,239) in view of Miyanaga et al. (5,418,187).

Regarding claim 56, Chu teaches in figure 3O and related text an Integrated circuitry comprising: a semiconductive substrate 300; a series of first conductive polysilicon lines 302 (see figure 3H) over the substrate, the first series conductive lines having individual pairs of respective sidewalls; electrically insulative oxide material 312 over respective first series conductive lines, a top of the oxide material over at least some of the lines defining a first plane; a plurality of insulative oxide sidewall spacer pairs 311, individual spacer pairs being on respective sidewall pairs of individual first series conductive lines and being connected with the electrically insulating oxide material over the respective individual first series conductive lines; individual first series conductive lines being effectively insulated by the gate oxide layer 301, the respective sidewall spacer pairs 311, and the respective insulating oxide material; and

a series of second conductive metal-containing lines 313 having respective line tops at least some of which define a second plane that is coplanar with said first plane, the series of second conductive lines being over the substrate.

Chu does not teach an electrically insulative borophosphosilicate glass (BPSG) layer over the semiconductive substrate and metal conductor comprising aluminum.

Miyanaga et al. teach in figure 1E and related text an electrically insulative borophosphosilicate glass (BPSG) layer 11 over the semiconductive substrate 100 and metal conductor comprising aluminum. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use a metal conductor

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comprising aluminum and an electrically insulative borophosphosilicate glass (BPSG) layer over the semiconductive substrate of Chu's device in order to reduce the contact resistance of the device and in order to promote surface tension and to obtain higher yield and reliability, respectively. The combination is motivated by the teachings of Miyanaga et al. who point out the advantages of using an electrically insulative borophosphosilicate glass (BPSG) layer over the semiconductive substrate (column 2, lines 13-68, and column 9, lines 5-12).

Regarding claim 57, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to use first series conductive lines having elevational thicknesses in a range from 2000 Angstroms to 10,000 Angstroms in Chu's device, since it is within the skills of an artisan, subject to routine experimentation and optimization.

Regarding claim 58, Chu teaches in figure 30 and related text individual second series lines have substantially a common lateral cross sectional shape.

### ***Response to Arguments***

Applicant argues that the polysilicon conductors 24 of Lur et al. are not provided sufficiently laterally adjacent to provide cross-talk shielding.

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Lur et al. teach conductors 24 being laterally next to (adjacent) to each other. The disclosure does not teach that at certain distance from each other the conductors can not provide cross-talk shielding. Therefore, the conductors of Lur et al. provide cross-talk shielding, as claimed.

Applicant argues that Lur et al. do not teach a series of alternating first and second conductive lines.

Lur et al. teach more than two conductive lines being adjacent to each other. Therefore, Lur et al. teach a series of alternating first and second conductive lines. Note that any line can be labeled as a first conductive line or a second conductive line, and naturally the conductive lines can be alternatively labeled as first and second conductive lines.

Applicant argues that Lur et al. do not disclose or suggest the subject matter of claim 44, because polysilicon conductors 24 and first electrode metal layer 40 are not spaced and positioned laterally adjacent one another.

Lur et al. teach the subject matter of claim 44, because polysilicon conductors 24 of the first conductive line are spaced and positioned laterally adjacent from the first electrode metal layer 40 of the second conductive line.

Applicant argues that Lur et al. do not teach first and second conductive lines being separated by intervening strips of insulating material only having respective lateral



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widths that are substantially less than the lateral widths of any of the first and second conductive lines.

Lur et al. teach first and second conductive lines being separated by only an insulating material. Therefore, it is unclear to the examiner why Lur et al. do not teach first and second conductive lines being separated by intervening strips of insulating material only.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

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**Papers related to this application may be submitted to Technology center (TC) 2800 by facsimile transmission. Papers should be faxed to TC 2800 via the TC 2800 Fax center located in Crystal Plaza 4, room 4-C23. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). The Group 2811 Fax Center number is (703) 308-7722 and 308-7724. The Group 2811 Fax Center is to be used only for papers related to Group 2811 applications.**

Any inquiry concerning this communication or any earlier communication from the Examiner should be directed to *Examiner Nadav* whose telephone number is **(571) 272-1660**. The Examiner is in the Office generally between the hours of 7 AM to 4 PM (Eastern Standard Time) Monday through Friday.

Any inquiry of a general nature or relating to the status of this application should be directed to the **Technology Center Receptionists** whose telephone number is **308-0956**



O.N.  
11/22/04

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